

REMARKS

This paper is filed in response to the official action dated December 5, 2007 (hereafter, “the official action”). This paper is timely filed as it is accompanied by a petition for extension of time and authorization to charge our credit card account in the amount of the requisite fee. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith, to our Deposit Account No. 13-2855, under Order No. 29610/CDT413.

All pending claims 1-8, 11, 13, 14, 16-24, 26-32, and 34-40 have been rejected as variously obvious over Funhoff et al. (US Patent 5,518,824, “Funhoff”) and Lamansky et al. (Organic Electronics, 2(1):43-62 (2001), “Lamansky”) in view of one or more of Migliorato et al. (U.S. Patent No. 4,834,505, “Migliorato”), Okunaka et al. (U.S. Patent No. 6,696,181, “Okunaka”), D’Andrade et al. (Advanced Materials, 14(2):147-151 (Jan. 2002) “D’Andrade”), Thompson et al. (U.S. Patent 6,150,043, “Thompson”), and Nakaya (JP 2000-256319, “Nakaya”).

Additionally, the specification has been objected to for informalities noted at page 2 of the official action. The objection to the specification has been overcome by the amendments to the specification made herein. Accordingly, the objection to the specification should be withdrawn.

Finally, claims 24, 26, 38, and 39 have been objected to as lacking antecedent basis. The claims have been amended to be consistent with the examiner’s helpful suggestions at pages 2-3 of the action. The aforementioned objections should therefore be withdrawn.

Claim Rejections – 35 U.S.C. §103

With respect to the rejections over the cited art, Funhoff discloses a forming an OLED using a cross-linkable charge transport compound. Funhoff further discloses that charge transport compounds “expressly include those compounds which are components of the emitter layer, i.e. photoluminescent materials, such as fluorescent dyes.” *See* Funhoff at column 1, lines 55-60. Funhoff does not, however, disclose or suggest a combination comprising the cross-linkable charge transport compound and a phosphorescent material, as claimed. Further still, Funhoff cannot be said to fairly suggest combining a charge transport compound capable of

photoluminescence with a second polymerizable charge transport component, as asserted by the examiner (and explained in further detail below).

Lamansky discloses a composition comprising a (preformed) polymer and a phosphorescent material. Lamansky does not therefore disclose a polymerizable compound in combination with a phosphorescent material, as claimed.

Nonetheless, the examiner asserted that “[s]ince it is known in the art to dope polymer materials ... with phosphorescent materials to produce electroluminescent devices, it would have been obvious to one of ordinary skill in the art to use phosphorescent materials as the dopant material in the electroluminescent devices described by Funhoff et al. since the devices would be predicted to function, with an improvement in efficiency based on the use of phosphorescent materials compared with fluorescent materials.” *See* Official action at page 7.

In response, the applicants respectfully submit that there is no motivation to combine Funhoff and Lamansky as proposed by the examiner.

Funhoff does not disclose or suggest doping a polymer material formed by cross-linking a charge transport compound with a photoluminescent material, as asserted by the examiner. Funhoff merely states that the principle of cross-linking charge transport materials could be extended to photoluminescent materials carrying groups capable of polymerization. *See* Funhoff at column 1, lines 55-60 and column 3, line 18 through column 4, line 6. Thus, Funhoff considers photoluminescent materials to be species of the charge transport materials disclosed therein. Funhoff therefore does not contemplate combining a photoluminescent material and a charge transport compound, as the examiner asserted.

It is difficult to achieve an even dispersion of a phosphorescent material in a polymer. This problem has been solved in accordance with the present invention by providing a composition comprising a polymerizable material having a charge transporting component in combination with a phosphorescent material. Because Funhoff does not contemplate combining the photoluminescent material and the charge transport compound disclosed therein, Funhoff does not disclose or suggest any solution to the foregoing problem (much less application to phosphorescent materials, as explained in further detail below). Lamansky is similarly deficient in

that it starts with a (preformed) polymer and thus does not provide polymeric compositions containing evenly dispersed phosphorescent materials.

Furthermore, the present application explicitly discloses it was not known at the time of invention whether phosphorescent materials would be stable to the photo-polymerization of materials such as those exemplified in Funhoff. *See* present application at paragraph bridging pages 10-11.

Additionally, the present application discloses that photo-polymerized cross-linked systems with fluorescent dopants demonstrate poor performance. *See* present application at paragraph bridging pages 10-11.

Thus, one of ordinary skill in the art would not have had a reasonable expectation of success to combine a polymerizable compound and a phosphorescent material, as claimed. Consistent with this statement, the EL device results reported in Funhoff are very poor – as they give light emission at 81 V and 91 V, respectively, both of which are entirely unacceptable operating voltages for OLED's. *See* present application at paragraph bridging pages 2-3.

Finally, an unexpected increase in efficiency was obtained by combining a polymerizable compound and a phosphorescent material, as claimed. In fact, a much greater increase in efficiency than could be accounted for solely by changing from a fluorescent emitter to a phosphorescent emitter was found. *See* present application at paragraph bridging pages 10-11. These advantages are neither disclosed nor suggested in the cited prior art.

The other documents cited by the examiner do not remedy the foregoing deficiencies.

In view of the foregoing, it is respectfully submitted that a *prima facie* case of obviousness cannot be sustained. Accordingly, the rejections of record should be withdrawn.

CONCLUSION

It is submitted that the application is in condition for allowance. Should the examiner wish to discuss the foregoing, or any matter of form or procedure in an effort to advance this application to allowance, he is respectfully invited to contact the undersigned attorney at the indicated telephone number.

Respectfully submitted,

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